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REMARKS

This is a full and timely response to the non-final Official Action mailed November 6, 2006. Reconsideration of the application in light of the following remarks is respectfully requested.

Claim Status:

Claims 1-50 are currently pending for further action.

Prior Art:

Claims 1-4, 10-12, 17-22, 28-30, 35-38 and 44-46 were rejected as anticipated under 35 U.S.C. § 102(e) by U.S. Patent App. Pub. No. 2003/0090597 to Katoh et al. ("Katoh"). For at least the following reasons, this rejection is respectfully traversed.

By way of background, Applicant wishes to explain subject matter from the present application that appears to have been misunderstood given the application of Katoh to the present claims.

Wobulation is a technique used "to enhance image resolution and hide pixel inaccuracies." (Applicant's specification, paragraph 0024). In wobulation, each frame of an image is divided into sub-frames. Then, a "wobbling device shifts the pixels such that each image sub-frame is displayed by the display optics (105) in a slightly different spatial position than the previously displayed image sub-frame. The wobbling device (104) may shift the pixels such that the image sub-frames are offset from each other by a vertical distance and/or by a horizontal distance." (Applicant's specification, paragraph 0033). This shifting results, as indicated, in the perception by the viewer of enhanced resolution with fewer pixel

PAGE 21/26 * RCVD AT 2/6/2007 4:39:47 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-1/16 * DNIS:2738300 * CSID:18015727666 * DURATION (mm-ss):06-06

inaccuracies. The sub-frames mentioned are created specifically for the wobulation technique being performed.

"Often, the input signal into a display system is an interlaced video signal. In interlaced video, individual interlaced image frames are represented by two consecutive fields. Each field contains every other horizontal line in the frame. A top field comprises the odd horizontal lines in the frame and a bottom field comprises the even horizontal lines in the frame. Thus, an image frame is displayed by sequentially displaying the top and bottom fields in any order." (Applicant's specification, paragraph 0003). Applicant notes that these fields do not traditionally have anything to do with the sub-frame divisions created for wobulation. A field is not a wobulation sub-frame and vice versa.

Previously, the application of wobulation to an interlaced video signal would have been performed as follows. First, the interlaced video signal is converted into a progressive signal, i.e., the separation of image frame data into top and bottom fields is *undone* such that the separate fields are eliminated. Then, sub-frames are generated from the progressive signal for the purpose of wobulation. There is no relationship between the fields that no longer exist and the wobulation sub-frames generated. Finally, the subframes are sequentially displayed while being offset from each other, i.e., wobulated.

Turning to the cited prior art, Katoh only mentions interlaced video in passing and has virtually nothing to do with the claimed subject matter. Rather, Katoh appears to merely be exemplary of the prior art technique described above. According to Katoh, "in the interlaced scanning technique, an image represented by a field may be processed similarly to an 'image frame' as used herein." (Katoh, paragraph 0176).

PAGE 22/26 * RCVD AT 2/6/2007 4:39:47 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-1/16 * DNIS:2738300 * CSID:18015727666 * DURATION (mm-ss):06-06

In contrast, Applicant's claims take an entirely different approach. Specifically, claim 1 recites:

> A display system for displaying an interlaced image frame, said interlaced image frame comprising a top field and a bottom field, said top and bottom fields each having lines of pixels, said system comprising:
> an image processing unit configured to process a stream of pixel data elements sequentially corresponding to said pixels in said top and bottom fields and generate a number of image sub-frames;
> a modulator configured to generate a light beam bearing said number of image sub-frames; and
> a wobbling device configured to displace said light beam such that each of said image sub-frames is spatially displayed offset from a previous image sub-frame;
> *wherein at least one of said image sub-frames is generated using only said pixel data elements in said top field and at least one of said image sub-frames is generated using only said pixel data elements in said bottom field.*

(Emphasis added).

Thus, Applicant's claim 1 recites a new relationship between the fields of an interlaced video signal and the sub-frames generated for wobulation. Specifically, rather than converting the interlaced video to progressive video so that it can be processed similar to any other image frame, claim 1 recites that at least one image sub-frame is formed using only data from a specific, i.e., top field, of an image frame and another at least one image sub-frame is formed using only data from a specific, i.e., bottom field, of the image frame.

Katoh does not remotely suggest this subject matter. Katoh does not teach or suggest any such relationship between the separate fields of interlaced video and sub-frames subsequently generated for wobulation. As noted, Katoh has virtually nothing to do with the claimed subject matter.

"A claim is anticipated [under 35 U.S.C. § 102] only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." Verdegaal Bros. v. Union Oil Co. of California, 2 U.S.P.Q.2d 1051, 1053 (Fed.

PAGE 23/26 * RCVD AT 2/6/2007 4:39:47 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-1/16 * DNIS:2738300 * CSID:18015727666 * DURATION (mm-ss):06-06

Cir. 1987) (emphasis added). See M.P.E.P. § 2131. For at least these reasons, the rejection of claim 1 and its dependent claims should be reconsidered and withdrawn.

Independent claim 18 recites:

> A method of displaying an interlaced image frame, said interlaced image frame comprising a top field and a bottom field, said top and bottom fields each having lines of pixels, said method comprising:
> processing a stream of pixel data elements sequentially corresponding to said pixels in said top and bottom fields and *generating a number of image sub-frames corresponding to said top and bottom fields*; and
> displaying each of said image sub-frames offset from a previous image sub-frame.

(Emphasis added).

Independent claim 36 recites:

> A system for displaying an interlaced image frame, said interlaced image frame comprising a top field and a bottom field, said top and bottom fields each having lines of pixels, said system comprising:
> means for processing a stream of pixel data elements sequentially corresponding to said pixels in said top and bottom fields and *generating a number of image sub-frames corresponding to said top and bottom fields*; and
> means for displaying each of said image sub-frames offset from a previous image sub-frame.

(Emphasis added).

In contrast, as explained above, the cited prior art, including Katoh, has not taught or suggested generating image sub-frames for wobulation where the image sub-frames correspond to top and bottom fields of an interlaced image frame. Rather, in the past, the separation into fields has been undone in the video before wobulation sub-frames were ever generated.

Thus, Katoh fails to teach or suggest the claimed method or means for "generating a number of image sub-frames corresponding to said top and bottom fields." "A claim is anticipated [under 35 U.S.C. § 102] only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." Verdegaal

PAGE 24/26 * RCVD AT 2/6/2007 4:39:47 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-1/16 * DNIS:2738300 * CSID:18015727666 * DURATION (mm-ss):06-06

Bros. v. Union Oil Co. of California, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987) (emphasis added). See M.P.E.P. § 2131. For at least these reasons, the rejection of claims 18 and 36, and their respective, dependent claims should be reconsidered and withdrawn.

Additionally, as would be expected, the various dependent claims of the application recite additional subject matter that is not taught or suggested by Katoh. For example, claim 2 recites "wherein said image processing unit is configured to process said pixel data elements in said top field to generate a first image sub-frame and said pixel data elements in said bottom field to generate a second image sub-frame." In this regard, the misguided Office Action cites a portion of Katoh (paragraph 0026) that describes the conventional method of generating sub-frames from a non-interlaced video frame without reference or regard to the fields of an interlaced image frame. (Action of 11/6/06, p. 3). Consequently, the cited portion of Katoh clearly has nothing to do with the subject matter of claim 2.

A similar example could be made for virtually any of the independent claims of the application given the utter inapplicability of Katoh to the claimed subject matter.

Claims 5, 23 and 39 were rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Katoh and U.S. Patent No. 6,680,748 to Monti ("Monti"). Claims 6-9, 13-16, 24-27, 31-34, 40-43 and 47-50 were rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Katoh and U.S. Patent No.5,581,302 to Ran et al. ("Ran"). These rejections are respectfully traversed for at least the same reasons given above with respect to the independent claims of the application.

PAGE 25/26 * RCVD AT 2/6/2007 4:39:47 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-1/16 * DNIS:2738300 * CSID:18015727666 * DURATION (mm-ss):06-06

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Conclusion:

For the foregoing reasons, the present application is thought to be clearly in condition for allowance. Accordingly, favorable reconsideration of the application in light of these remarks is courteously solicited. If the Examiner has any comments or suggestions which could place this application in even better form, the Examiner is requested to telephone the undersigned attorney at the number listed below.

Respectfully submitted,

DATE: February 6, 2007

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PAGE 26/26 * RCVD AT 2/6/2007 4:39:47 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-1/16 * DNIS:2738300 * CSID:18015727666 * DURATION (mm-ss):06-06